

REMARKS

I. Status of Claims

Claims 1 and 3-110 were pending at the time of the Action. Claims 1-6, 13-64 and 69-71 have been previously withdrawn. Claims 7, 65, 81, 86, 89, 92, 98, 99 and 105 have been amended. Claim 111 has been added. No claims have been cancelled. Therefore, claims 7-12, 65-68, and 72-111 are currently pending.

Support for the subject matter of the claim amendments can be found throughout the specification. Specific examples of support include FIG. 1, claims 29 and 59, page 5, line 8, and page 15, lines 7-9.

II. Claim Rejections – 35 U.S.C. § 102

Claims 7-10, 65-68, 72-83, 85, 87-92, 97-105 and 107-110 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Sundberg *et al.* (U.S. Patent No. 6,090,251). Applicants respectfully traverse the rejection. However, in an effort to expedite the prosecution of the application and obtain a timely notice of allowance, applicants have amended claims 7, 65, 81, 89, 92, 98 and 105. Applicants explicitly reserve the right to pursue the subject matter of claims 7, 65, 81, 89, 92, 98 and 105 in a continuing application.

A. Claims 7-10, 73-80

Claim 7 has been amended to clarify that the liquid input opening is configured to receive liquid and that the first passage leading from the liquid input opening is operative to move unfiltered liquid from the liquid input opening. Assuming, without admitting, that Sundberg discloses the features cited by the Examiner, the reference does not disclose the features claimed in amended claim 7. For example, Sundberg does not disclose that the first passage leading from the liquid input reservoir is operative to move unfiltered liquid from the liquid input reservoir. The Examiner has identified electroosmotic channel 76 as the “first channel” required in claim 7. As shown below in the annotated FIG. 7 of Sundberg, channel 76 receives liquid that has been filtered by filter channels 70.

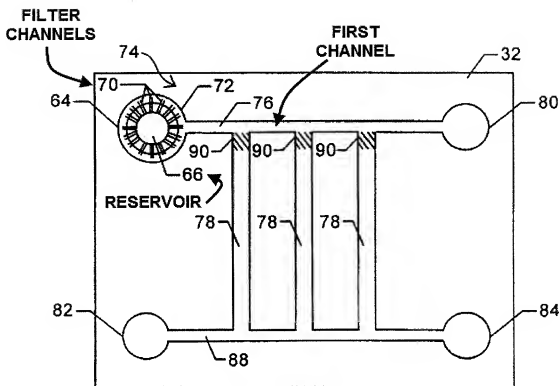


Fig. 7

Therefore, channel 76 can not move unfiltered liquid from the liquid input reservoir by capillary action, as required by claim 7. In fact, Sundberg clearly discloses that the liquid from reservoir 64 is filtered, rather than unfiltered.

Referring now to FIGS. 7-9, it will be useful in many microfluidic networks to pre-position different fluids within a microfluidic network at predetermined locations. For example, a microfluidic channel network 74 includes an electroosmotic channel 76 from which three electrophoretic separation channels 78 extend. Electrophoretic channels 78 will preferably contain a separation solution including a polymer, while electroosmotic channel 76 will preferably be filled with a buffer solution to facilitate transportation of a fluid sample from filtered reservoir 64. Unfortunately, if all of the channels have uniform cross-sections, any fluid introduced into any of the reservoirs 64, 80, 82, or 84, will wick throughout channel network 74.

Sundberg, col. 9, lines 27-39 (emphasis added). As illustrated above, Sundberg does not disclose a first passage operative to move unfiltered liquid from the liquid input reservoir by capillary action. For at least this reason, the reference does not disclose each of the elements of claim 7 and therefore does not anticipate claim 7. Accordingly, Applicants request the rejection of claim 7 be withdrawn and a notice of allowance issued.

Claims 8-10 and 73-80 depend directly or indirectly from claim 7 and are also allowable for at least the reasons provided above in the discussion of claim 7. Accordingly, Applicants request the rejection of claims 8-10 and 73-80 be withdrawn and a notice of allowance issued for these claims as well.

B. Claims 65-68 and 72

Claim 65 requires a first passage leading from the liquid input reservoir and operative to move unfiltered liquid from the liquid input reservoir by capillary action. As explained above in the discussion of claim 7, Sundberg does not disclose a first passage operative to move unfiltered liquid from the liquid input reservoir by capillary action. For at least this reason, the reference does not disclose each of the elements of claim 65 and therefore does not anticipate claim 65. Accordingly, Applicants request the rejection of claim 65 be withdrawn and a notice of allowance issued.

Claims 66-68 and 72 depend directly or indirectly from claim 65 and are therefore also allowable. Accordingly, Applicants request the rejection of claims 66-68 and 72 be withdrawn and a notice of allowance issued for these claims as well.

C. Claims 81-83, 85, 87-92, and 97

Claim 81 requires a first passage leading from the liquid input reservoir to a

downstream location, where the first passage is configured to move unfiltered liquid from the liquid input reservoir to the downstream location. As explained above in the discussion of claim 7, Sundberg discloses that channel 76 is configured to move liquid from a filtered reservoir to a downstream location. Therefore, Sundberg does not disclose a first passage configured to move unfiltered liquid from the liquid input reservoir to a downstream location. For at least this reason, the reference does not disclose each of the elements of claim 81 and therefore does not anticipate claim 81. Accordingly, Applicants request the rejection of claim 81 be withdrawn and a notice of allowance issued.

Claims 82-83, 85, 87-92 and 97 depend directly or indirectly from claim 65 and therefore are also allowable. Accordingly, Applicants request the rejection of claims 82-83, 85, 87-92 and 97 be withdrawn and a notice of allowance issued for these claims as well.

E. Claims 98-105, 107-110

Claim 98 requires a reservoir for accepting a liquid specimen and a liquid receiving means downstream of the reservoir. Claim 98 also requires the liquid receiving means be configured to receive unfiltered liquid from the reservoir. As explained above in the discussion of claim 7, Sundberg discloses a filtered reservoir. Therefore any liquid receiving means downstream of the reservoir will necessarily receive a filtered liquid rather than an unfiltered liquid. For at least this reason, Sundberg does not disclose each of the elements of claim 98 and therefore does not anticipate claim 98. Accordingly, Applicants request the rejection of claim 98 be withdrawn and a notice of allowance issued.

Claims 99-105 and 107-110 depend directly or indirectly from claim 65 and therefore are also allowable. Accordingly, Applicants request the rejection of claims 99-105 and 107-110 be withdrawn and a notice of allowance issued for these claims as well.

III. Claim Rejections – 35 U.S.C. § 103

A. 11, 12, 84, 86, 93-96 and 106

Claims 11, 12, 84, 86, 93-96 and 106 have been rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Sundberg and further in view of Quake (U.S. Patent Publication No. 20040248167). Applicants respectfully traverse the rejection.

Claims 11 and 12 depend directly or indirectly from claim 7 and are allowable for at least the reasons provided above for claim 7. Claims 84, 86, and 93-96 depend directly or indirectly from claim 81 and are allowable or at least the reasons provided above for claim

81. Claim 106 depends indirectly from claim 98 and is allowable or at least the reasons provided above for claim 98. Accordingly, Applicants request the rejection of claims 11, 12, 84, 86, 93-96 and 106 be withdrawn and a notice of allowance issued for these claims as well.

B. Claims 81-97

Claims 81-97 have been rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Brody (U.S. Patent No. 5,922,210) and further in view of Quake. Applicants respectfully traverse the rejection. However, in an effort to expedite the prosecution of the application and obtain a timely notice of allowance, applicants have amended independent claim 81.

Assuming, without admitting, that Brody and Quake disclose the features recited by the Examiner, the references do not disclose the limitations of amended independent claim 81. For example, neither Brody nor Quake disclose at least one filter located along each side of the first passage leading from a liquid input reservoir, as required by claim 81. Furthermore, as explained below in Section III. C., it would not have been obvious to modify the references to include the limitations required by claim 81. Accordingly, Applicants request the rejection of claim 81 be withdrawn and a notice of allowance issued for these claims. Claims 82-97 depend directly or indirectly from claim 81 and are allowable for at least the reasons provided above for claim 81. Accordingly Applicants request the rejection of claims 82-97 be withdrawn and a notice of allowance issued for these claims as well.

C. Claims 7-10, 65-68, 72-83, 85, 87-92, 97-105 and 107-110

Claims 7-10, 65-68, 72-83, 85, 87-92, 97-105 and 107-110 have been rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Brody and/or Sundberg in view of Hillman (U.S. Patent No. 5,204,525). Applicants respectfully traverse the rejection. However, in an effort to expedite the prosecution of the application and obtain a timely notice of allowance, applicants have amended independent claims 7, 65, 81 and 98.

In support of the rejection, the Examiner states:

[I]ndependent claims 7, 65, and 81 are assumed to recite a liquid feed inlet, a first passage leading from the liquid feed inlet to an expanded region having a plurality of capillaries which provide *capillary pumping action* to the feed fluid, and at least one weir filter located tangential to the first passage between the feed inlet and the expanded region, communicating between the first passage and a filtrate flow path (support:

applicant's figure 1). [Highlighted portion has no explicit support in applicant's disclosure]

Action, pp. 6-7 (emphasis in original).

Applicants respectfully submit that independent claims 7, 65, and 81 recite only those limitations specifically mentioned in the claims. Exemplary embodiments in the specification may include additional features that are not specifically recited in the claims. Such features should not be assumed to be included in the claims when interpreting the claims. However, to the extent that any claim does include a limitation requiring an expanded liquid flow path for drawing liquid by capillary action, Applicants note that the specification explicitly states:

Capillary action in the filtration channel 26 initiates the flow of specimen liquid therein and capillary action in the flow channels 32 of the expanded channel 30 continues to draw the specimen liquid into and along the filtration channel 26. In the case of blood the red cell rich suspension in the parallel channels 32 is delivered toward output reservoir 54 that is also vented to atmosphere by a hole 55 in the glass lid or closure 42.

It was determined that plasma flux across the filter is substantially independent of the % of hematocrit of the specimen. This is an unexpected and beneficial result for clinical use of such microfilter device, making their performance very much independent of % of hematocrit variances among individuals or within an individual.

Specification, p. 15, lines 7-15.

Assuming, without admitting, that Brody, Sundberg, and Hillman disclose the features recited by the Examiner, the references do not disclose the limitations of amended independent claims 7, 65, 81 and 98. For example, none of the references disclose at least one filter located along each side of the first passage leading from a liquid input reservoir, as required by claims 7, 65 and 81. Furthermore, none of the references disclose at least one filter located along each side of the liquid receiving means downstream of a reservoir for accepting a liquid specimen as required by claim 98.

For at least these reasons, the references do not disclose each of the limitations in independent claims 7, 65, 81 and 98. Applicants also submit that it would not have been obvious to modify any of the cited references to include the limitations of claims 7, 65, 81 and 98. For example, Brody appears to be the only reference that teaches a filter along one

side of a passage operative to move unfiltered liquid from the liquid input reservoir. It would not have been obvious to modify Brody to include additional filters because the reference only teaches a single feed flow channel (rather than multiple flow paths). If additional filters were added to the Brody configuration, the single feed flow channel would be more prone to clog, which would prevent the feed channel from allowing flow through the barrier channel and into the filtrate collection and outlet channels. For at least these reasons, it would not be obvious to modify the Brody device to include the limitations of claims 7, 65, 81 and 98.

Accordingly, Applicants request the rejection of claims 7, 65, 81 and 98 be withdrawn and a notice of allowance issued for these claims. Claims 8-10, 66-68, 72-80, 82-83, 85, 87-92, 97, 99-105 and 107-110 depend directly or indirectly from claims 7, 65, 81 or 98 and are allowable for at least the reasons provided above for claims 7, 65, 81 or 98. Accordingly Applicants request the rejection of claims 8-10, 66-68, 72-80, 82-83, 85, 87-92, 97, 99-105 and 107-110 be withdrawn and a notice of allowance issued for these claims as well.

D. Claims 11, 12, 84, 86, 93-96 and 106

Claims 11, 12, 84, 86, 93-96 and 106 have been rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Brody and/or Sundberg in view of Hillman and Quake (U.S. Patent 6,090,251). Applicants respectfully traverse the rejection. Claims 11, 12, 84, 86, 93-96 and 106 depend directly or indirectly from claims 7, 81 or 98 and are allowable for at least the reasons provided above for claims 7, 65, 81 or 98. Accordingly Applicants request the rejection of claims 11, 12, 84, 86, 93-96 and 106 be withdrawn and a notice of allowance issued for these claims as well.

IV. Allowable Subject Matter

Applicants gratefully acknowledge the claim drafted by the Examiner, which the Examiner considers to distinguish patentably over the art of record. Applicants have added new claim 111 which is substantially similar to the Examiner's proposed claim. Applicants note that claim 111 differs from the proposed claim in two respects. Claim 111 does not require the filtrate channels be parallel to the first passage. Claim 111 also does not require the plurality of capillary channels in the expanded region be parallel. Applicants believe that these limitations are not needed to distinguish patentably over the art of record. Accordingly, Applicants have not included these limitations in claim 111.

VI. Conclusion

Applicants believe that all outstanding issues noted in the December 6, 2007 Office Action have been addressed. Applicants therefore request withdrawal of the pending objections and rejections and issuance of a timely notice of allowance. The Examiner is invited to contact the undersigned attorney at (512) 536-3072 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,



Chris W. Spence
Reg. No. 58,806
Attorney for Applicants

FULBRIGHT & JAWORSKI L.L.P.
600 Congress Avenue, Suite 2400
Austin, Texas 78701
(512) 474-5201

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